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A THEORETICAL OVERVIEW OF AFRICAN DEVELOPMENT STRATEGY AND AN INSTITUTIONAL MECHANISM FOR CREATION OF COMMON MARKET FOR MODERNIZATION AND GROWTH

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TABLE OF CONTENTS

PARAGRAPHS

I. INTRODUCTION 1-3

II. THEORETICAL FRAMEWORK (OR UNDERPINNING) 4-50

A. Collapse of development in Eighties - an unexplained phenomenon 4-7
B. Different paradigms in economic analysis 8-10
C. The patterns of development 11-12
D. Wage levels for developing countries and loan servicing 13
E. Price structure in low wage countries 14-15
F. Two groups of developing countries 16-21
G. Macro-economics of developing countries .....

(a) Lewis' macro model of development 22-25
(b) Lewis development model: A diagramatic representation 26-29
(c) The failure of development 30-46

H. Nominal wage rates in developing countries 47-48
I. International economic order as impediment to development 48-50

III. THE EXPERIENCE OF COOPERATION IN AFRICA 51-84

A. Some basic problems of cooperation in Africa 57-80
B. Situation in African countries 81
C. Its implications for a customs union 82-84

IV. THE WAY FORWARD - A COMPLETE SYSTEM APPROACH 85-92

A. Additional self sufficient economy 85-88
B. A commodity standard currency 89-92

V. PERSPECTIVE OF COMPLETE PROJECT WIDE COOPERATION:
A. MODULAR FORMAT FOR AFRICAN COMMON MARKET 93-106

A. Commission for modernization project 93-94

VI. RECAPITULATION - BASIC MECHANISM FOR GROWTH AND COOPERATION 107-109

REFERENCES

ANNEX A

ANNEX B

A THEORETICAL OVERVIEW OF AFRICAN DEVELOPMENT STRATEGY AND AN INSTITUTIONAL MECHANISM FOR CREATION OF COMMON MARKET, FOR MODERNIZATION AND GROWTH

I. INTRODUCTION

1. "The Lagos Plan of Action (LPA) established as a primary objective the alleviation of mass poverty and improvement in the standard of living of the African people. Secondly, the concept of self-sustained development was taken as essential in view of its relation to the first objective, especially as regards such basic targets as attainment of food self-sufficiency, provision of critical goods and services, etc. Thirdly, while the LPA acknowledged the interdependence of the economies of the world, there was a realisation that the balkanization of Africa necessitated the pursuance of the objective of national and regional collective self-reliance. ... Unfortunately, the the intensification of the economic crisis in Africa in the early 1980s, the approach of LPA was in many cases abandoned as the main preoccupation of most African policy makers increasingly became crisis management for economic survival. The focus thus shifted to short term concerns resulting mainly from external shocks such as the collapse of the regime of stable exchange rates and commodity markets, high interest rates, persistent drought and mounting external debt obligations..... Many countries were forced to resort continuously to external borrowing at very high rates of interest because of rapidly declining export earnings." [African Alternative Framework to Structural Adjustment Programmes (AAF-SAP) p. 9-10].

2. The above quotation puts in nutshell our task of devising an institutional framework of alleviation of mass poverty and improvement in the standard of living of African people that will not be subject to the above mentioned vagaries of the International Economic Order that led to the virtual abandonment of the Lagos Plan of Action. As individual African countries are small and their markets fragmented, any strategy of development and satisfaction of the basic needs of the people independent of international economic gyrations would imply effective economic cooperation at various levels. "The integrated exploitation of region's uneven energy resources, such as hydro-power, would enable energy-deficit regions to obtain energy that is critically necessary for transformation. Subregional and regional research in areas such as agriculture, drought and desertification, tropical diseases, pest control, herbal medicine, etc. would, inter alia, minimize the duplication of efforts at national levels and facilitate the operationalixation of research findings on a region-wide basis. The vertable gains of African collective self-reliance will, undoubtedly, derive from the integration of the production structures. .... The production dimensions of regional collective self-reliance are so important that they require specific focus in terms of the priorities or special production structures that should be aimed at. In line with the objective of establishing a human-centred development, the first priority area for collective self-reliance is that of regional food security. The second priority area relates to the production of intermediate and capital goods, esepcially iron and steel, machine tools, fertilizers, chemicals and pharmaceuticals, building materials, as well as agricultural, transport and construction equipment". (AAF-SAP p. 14).

3. Thus all these activities in different areas may have to be developed in an integrated fashion in a way that their long term inter-dependent development is not interrupted by outside forces. As African countries between themselves are still not self sufficient in wherewithals of modernization, it may be necessary to associate other appropriate countries, for the time being, with the common endeavour of the African continent for economic self-sufficiency and development.

II. THEORETICAL FRAMEWORK (OR UNDERPINNING)*

A. Collapse of Development in Eighties - An Unexplained Phenomenon

4. In post 2nd World War decades, developing market economies made respectable economic progress. However, in these three and a half decades, hardly any of them could enter the category of the industrialized market economies. In the eighties, many of them, especially those in Sub-Saharan Africa, Latin America and Middle East have been saddled with negative growth of per capita income. Sometimes, decades of development efforts have been wiped out. No development theory had predicted this result. Conjectured causes of this phenomenon as well as and the solutions proposed have been of an ad hoc nature. Unless a theoretical understanding of the nature of the malady is achieved, we do not know whether the solutions proposed by the World Bank and others may not even make the situation worse. And most of the solutions proposed address to the problems of repaying the debts rather than how to continue on the road to development.

5. Further, the effects on development processes of low price levels and substantially different price structures in developing countries, as revealed by United Nations studies on purchasing power project analyses at micro level and development plans at the macro level quite inappropriate, leading to failures of individual projects and frustration of development efforts. The debt crisis of the third world countries in the eighties is just one symptom of that deep-rooted malady. Thus many best laid-out development plans, that seemed so promising in the sixties and seventies of this century, could not withstand the chill winds of the international economic order of the eighties. And those chill winds could not be guarded against as the implications of the differing price structures for development theory have not been understood.

6. The process of price determination in different situations becomes crucial to appreciating the growth process, and hence is a fit topic for discussion. The mainstream economic analysis completely fails in this task. Samuelson P (1984) for instance ascribes these differences in structure of prices to the distinction of tradeable and non-tradeable goods. While prices

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* For detailed discussion see Mathur P.N. "Why Developing Countries Fail to Develop?", Macmillan, London 1990.

of the tradeable were supposed to be similar, the differences were in non-tradeables. The reason adduced was that different productivities in tradeable lead to differences in wage rates, and the local prices of the nontradeables depend on the local wage rates. However, this explanation is found to be insufficient when we note that the price structural differences within tradeables themselves were found to be of sufficiently high order. (See table 1 for summary presentation of price structures).

7. In the short run, the general assumptions of instand technological adjustments along the continuous production function, consumption adjustments along a continuous utility curve, no bottlenecks etc.; on which the neo-classical economic theory is based are not satisfied in the developing countries, nor there are tendencies for the economy to move in the direction of the long run equilibrium envisaged by the neo-classical economic analysis, which has no theory of the move from one technological statis state to another. This implies that to understand the economies of the developing countries we may have to look to the economic consequences of both national and international constraints under which they are working at the present time. Further we have to look into the economic consequences of two techniques of production - traditional and modern - existing simultaneously, and of the attempts to move from one to another.

B. Different Paradigms in Economic Analysis

8. However, neo-classical paradigm is not the only paradigm in economics, though that one is pedagogically most sophisticated. Achieved mathematical sophistication is no recommendation for use if it does not help in understanding the economic reality. Any appropriate paradigm can easily be casted into mathematically sophisticated framework, that helps in bringing out its background assumptions and implications in relief. The real problem is its applicability in the given situation. The macro-economics depends on a different paradigm of economic reality. It is evident from the fact that all the attempts to construct micro-foundations of macro-economics have failed. The commercial revolution that was the harbinger of the industrial revolution had its own economic paradigm in Mercantilism with its emphasis on the freedom for merchants. Industrial revolution saw the development of classical economic thought advocating the freedom of the producer. As the economy was working under the constraint of availability of land, and there was an army of unemployed labour, the paradigm of wage fund became the anchor of their employment theory with labour's demand being relegated to subsistence level only. After the resistance of English landowners to the imports of corn from colonies was overcome with the abolition of the corn laws, the land constraint on British economy got removed. With economic growth the standard of living of common people also improved from subsistence level. The necessity for a new paradigm for economics not based on the constraints and incorporating a theory of demand became apparent. The neo-classical paradigm filled the need.

9. These paradigms were however not found useful in understanding the economic plight of workers as well as that of colonies and dependencies. In the terminology of Toyanbee*, we can say that while they helped in the understanding the economic issues being faced by the creative cum dominant minority of the modern commercial-industrial civilisation, the internal and external proletariat did not find in them a satisfactory explanation of their plight. These proletariats created their own systems. Marxiam economics developed as an attempt by internal proletariat to understand the working of this economic systems while Dada Bhai Naoroji's** (1888) Drain's Theory was developing a paradign to understand the economic situation of an economic dependency. Both works proved to be potent forces in political developments. While the communist revolutions got economic inspirations from Marx, the Indian freedom movement of Gandhi used the Naoroji's drain theory for emphasizing the economic harm being inflicted by British rule in India. But, while Marxism being the intellectual tool of the internal proletariat could get to the attention of the world academic community, the drain theory remained external to the main stream economics.

10. However, when we look at the economic predicament of the developing country now, we find that the paradigm developed by Naoroji help us in analysing the situation best. The following is an attempt to adopt the theory to the economic problems of developing countries in general and Africa in particular.

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* Arnold Toyanbee in his monumental Study of History (Oxford, 1934-54) has shown that most of successful creative efforts of mankind resulting in a civilization, not only results in the establishment of a creative cum dominant minority, but also of two types of proletariats - internal and external. Internal proletariat consist of the elements who work for the new order in the same locale, but in a subordinate position and comparatively gaining little fruits of it, like slaves in classical society, or serfs in a feudal one. While external proletariat are the elements who are outside the locale of the civilisation but get formally or informally attached to it through technological, political or economic contacts.

** Naoroji's concept of 'external drain' or unrequited exports from the developing country deals with the material balances in the international trade. It is related to the balance of payment concept in the same way as the concept of Net material Product used by USSR is related to the concept of Net Domestic Product of mainstream economics. As will be shown, while discussing appropriate macro-economic theory, this concept combined with the scarcity of land determines the economics of colonial development. See Naoroji, Dadabhai, "Poverty and Un-British Rule of Britain in India", London 1901; and Naoroji, Dada Bhai, "Poverty of India - Papers and Statistics" London 1888.

C. The Patterns of Development

11. The developing countries have largely been producers of agricultural and mining products. Their manufacturing largely consisted of traditional industries and some modern industries in processing agricultural products and textiles etc. primarily for local consumption. The development process mainly consisted in transferring the technical know-how of developed countries for creating modern production facilities in developing countries by installation of suitable capital equipment as well as by the creation of intra-structure. This has been accomplished in no small measure by the granting of loans mostly by the governments, banks and other institutions of the equipment supplier countries, supplemented by the financing of the World Bank. Simultaneously a significant amount of investment was carried out by multinational firms following this lead.

12. These investments were of two kinds. One was to produce in developing countries the goods primarily meant for the developed countries and the other was designed for the economic growth of developing countries themselves. Usually a loan provided for starting a business is serviced from the earnings from that business only. This should have worked allright for the first type of loan as the product of the business was not only supposed to provide the income, but also the hard currency through which the loan could be serviced. However, the earnings from the second type were in the local currency. There were not even any identifiable earnings from the loans provided for strengthening the infrastructure. Thus the payments on the account of the second type of loans had to be from the usual export earnings of the country rather than from the earnings of the production capabilities created by its use.

D. Wage Levels for Developing countries and Loan Servicing

13. The manufacturing industries which export to developed countries are producers of such products that can be produced within the developed countries themselves. Therefore, the feasibility of these exports primarily depend on the low labour costs. The basic technology of production is by and large the same as this is established in the developing countries through technological transfer rather than new fundamental research incorporating an intermediate technology. Further, with 'technological transfer', more often than not, the appropriate machinery and other equipment is also exported to the developing country and would ordinarily come from the same production line as the one established in the developed country. So the production technique would largely be the same except that required for subsidiary activities like transport of material etc. If the products of the industry thus established are meant to be exported to the developed country itself for servicing the loan or earning free foreign exchange, the developing country should provide a substantial saving in the labour costs.

E. Price Structure in Low Wage countries

14. But how can low wages in developing countries sustain their labour force? The answer to this can be gleaned from the studies on international comparisons of real product and purchasing power parities by the United Nations. These studies, though meant for comparing the total real gross product of different countries bereft of distorting effects of exchange rates give, inter alia, the price structure of the consumption and investment goods of the countries studied. Table 1 below gives these price comparisons for three groups of developing countries. Group I consisted of countries having real GDP per capita less than 15 per cent of U.S.A., Group II between 15 to 30 per cent and group III between 30 to 45 per cent in 1975. Most of the African countries would come in Group I. This table shows that low-wage countries also have lower prices of essential consumer goods, though not proportionately so. Though the average wage rate in Group I countries is only 8.4 per cent of that of the U.S.A. their real wage rate comes to be 21 per cent. Similarly that for Group II it is 22 per cent instead of eleven. This may be conceived as a 'subsistence' wage for industrial worker. It may be noted that for Group I and II the real wage rate is the same, the apparent difference is completely compensated by higher prices. These two groups together contain most of the developing countries including 'exporters of manufactures' like India, Kenya, Pakistan, Thailand, Phillipines etc. Among developing countries only a few exporters of the primary commodities could be in other groups.

15. All these developing countries are constituent of an international economic system where they must export to get basic wherewithals for survival and growth. The nominal wage rate is determined by the price their export commodities fetch in the international market. To sustain the labour force at that low wage rate the nominal prices of 'necessities' have to be so low as to enalbe those labourers to purchase their subsistence. If in production of those necessities no imported inputs are used, their local prices would be independent of exchange rate, and so can be as low as necessary in terms of the international currency. Such seems to be the condition in the Group I countries to which most of the African countries belong. At this low price of foodgrains they can hardly use imported inputs like fertilisers and fuel to increase the production of these necessities.

F. Two Groups of Developing countries

16. This clearly demarcates developing countries into two groups, viz. one whose price structure cannot support modern agriculture and the other whose price structure can just support it. Thus in the first group agricultural production depends on the traditional techniques of production. With that technique, there is an upper limit to agricultural output per unit of land as well as per unit of labour. As they cannot import non-subsidised foodgrains from outside, their total employment can hardly be increased. For the growing commercial export crops will only reduce the area under food crops and thus tend to reduce the availability of foodgrains and lead to the creation of additional unemployment and/or famine conditions.

Table 1

Average Price Indexes for Groups of Countries (1975)

	Real Income Group					
	I	II	III	IV	V	VI
Real GDP per Capita (USA = 100)						
Range	< 15	15-30	30-45	45-60	60-90	> 90
Mean	9.01	23.1	37.3	52.4	76.0	100
Price Indexes (USA = 100)						
Tradeables	60.0	70.7	86.6	97.9	118.5	100
Of Which						
Food	49.8	62.9	68.2	82.2	107.2	100
Of Which						
Bread and cereals	35.3	56.7	55.0	58.1	97.2	100
Meat	44.4	67.3	72.7	93.2	127.2	100
Coffee, tea, cocoa	81.8	118.5	167.7	285.1	192.8	100
Tobacco	73.2	66.2	130.4	78.5	147.8	100
Clothing and footwear	55.7	59.0	79.8	100.5	126.0	100
Furniture, appliances	77.6	91.4	96.3	94.9	93.8	100
Transport Equipment	168.4	163.5	226.2	162.4	149.1	100
Producers Durables	130.1	105.6	135.8	116.4	125.8	100
Fuel and Power*	64.4	82.1	82.9	99.1	151.7	100
Of Which						
Liquid Fuel	123.4	118.4	113.7	166.0	166.5	100
Non-Tradeables	24.9	37.2	46.5	53.4	96.7	100
Of which						
Construction	46.0	52.2	72.8	78.5	115.8	100
Services	20.7	34.1	41.2	46.3	94.6	100
Of Which						
Education	11.0	17.7	32.2	38.0	100.7	100
Medical Care	27.5	29.7	35.9	33.2	62.0	100
Total Consumption (including government)	40.1	50.1	59.2	69.1	102.8	100
Non-residential Capital Formation	109.0	95.6	118.7	107.4	131.5	100
Av. Industrial Wage Rate**	8.4	11.0	26.0	36.9	77.5	100
Av. Real Consumption of Industrial Worker	20.9	22.0	43.9	53.3	75.4	100

Note 1: This table has been taken from Kravis et al (1982), table nos. 6.8; 6.12; and Appendix table 6.3.

Note 2: There are wide variations within each group. So the table is largely indicative only.

* In this group electricity is included, which is non-tradeable.

** Industrial wage rates have been calculated from "Global Report 1986, UNIDO, Vienna 1987", which has culled them from industrial census data of individual countries. It is approximate as all the countries in the group were not reporting.

17. For labour constrained economies, any diversion of labour from producing food crops to working in export agriculture or industry will, similarly tend to reduce the production of foodgrains etc. This will show itself in famine conditions. The recurring famines in Africa in the seventies and eighties may have something to do with the efforts of these countries at export promotion and development during these decades. Similarly, endemic famines of late nineteenth and early twentieth centuries in India sub-continent were primarily related to getting export crops out of the limited land.

18. These countries cannot change their price structure by relative increase of foodgrain prices, so as to make their production non-loss-making after paying for inputs like fertilizers and after investing capital for modernization of agriculture, because that will increase the wage rate in the country. This in its turn will raise the cost of producing export commodities. As the price of the export commodity is determined in the international market, either the country will be priced out of the world market or will have to devalue its currency. This will bring it back to the starting point, except with some extra internal inflation as the consequence of its endeavour. Thus the new price of foodgrains would not be able to support the modernization of its production process, as the primary inputs of the improved techniques of production viz. chemicals, fertilizers etc. are to be imported. And with the given interrelationships between different sectors, the local price of foodgrains in international units just cannot be increased.

19. Thus the subsidising of foodgrains practiced by many developing countries help in keeping the supply price of export commodities at the appropriate level for international market. The euphemism that it helps urban poor does not stand any scrutiny as urban poor had been adjusting to inflation through changes in their nominal incomes in all these four decades of the post 2nd World War period. Under the circumstances a call for increasing exports as well as reducing food subsidies is internally inconsistent.

20. The second group of developing countries consist mainly of the countries of Latin America. In them the price structure is such that it can just support the modernization of foodgrain production. However, for that they require imported inputs. So this production becomes constrained by the availability of foreign exchange to them. The greater the amount of their foreign exchange earnings, the greater amount of wage goods they can produce. So they can have higher employment. The reduction of their export earnings would automatically result in the reduction of employment.

21. Thus, we find that the standard of living of average wage worker in the two groups of developing countries is almost the same after all. The ability of Group II to be able to use modern techniques of agricultural production has not helped its labour force to attain a higher standard of living. However, temporary increases in the price of export commodities may be able to create a temporary advancement only to be painfully reversed as the

international price regains its long term level. Thus in most of the Latin American countries the employment and wage rates increased fast in the seventies only to fall back to painfully in the eighties.

G. Macro-Economics of Developing Countries

(a) Lewis' Macro Model of Development

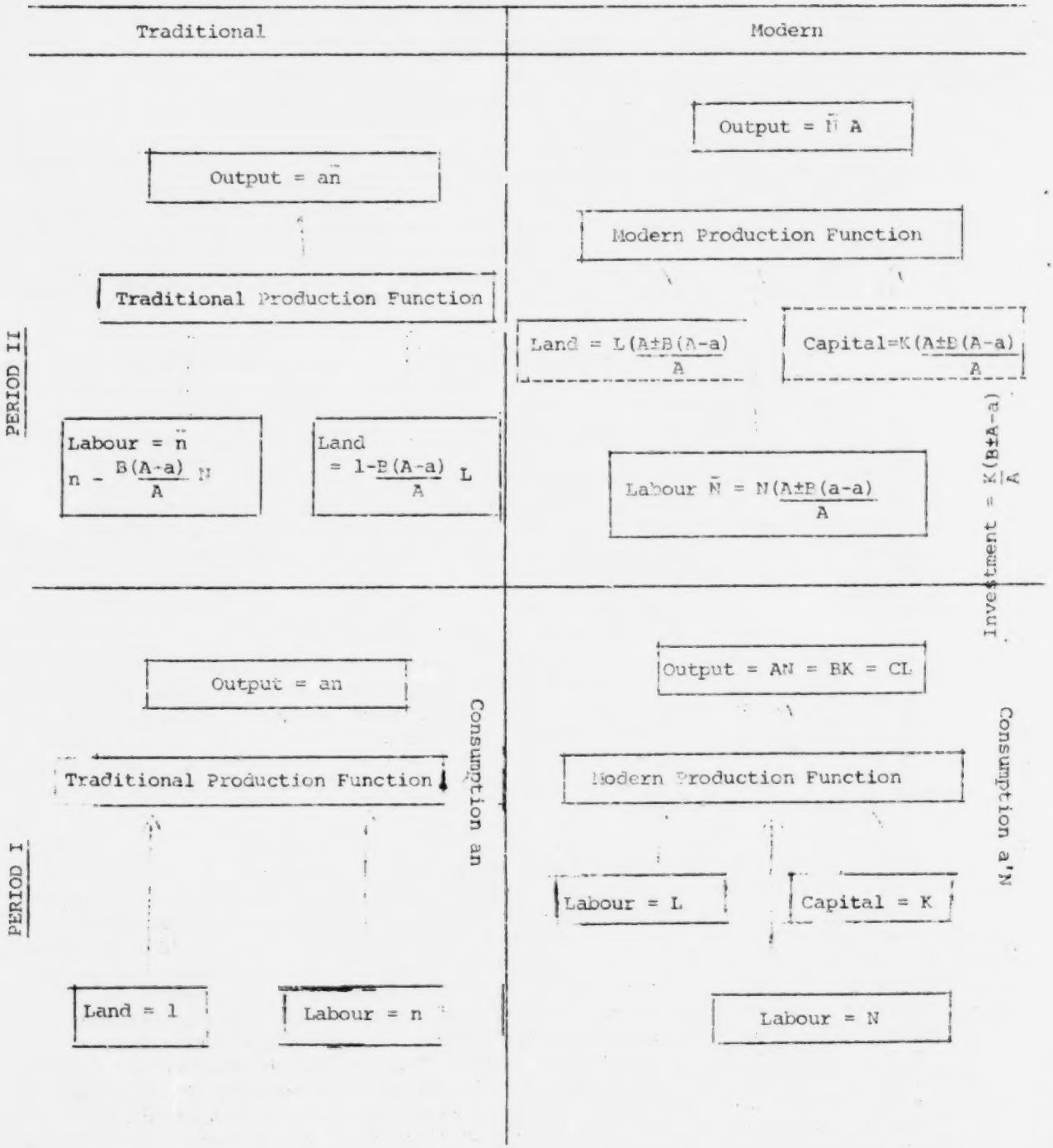
22. Following Lewis W.A. (1954) and Myint H. (1958), we can use the notion of duality to tell a development story. A developing country consists of two sectors: one modern and the other traditional. Traditional sector may not imply that all people getting their income from that are living at subsistence level only. It may consist of Landlords, Chiefs, etc. living lavishly compared to the poor people around. Similarly, the modern sector may give bare subsistence wages to its work-force.

23. Modern sector does not only consist of the modern industry.but plantations, mines and agricultural cultivation using modern production techniques like using fertilizers, tractors etc. are also part of it. Similarly, traditional sector consist of traditional peasant agriculture, cottage industries, traditional services etc. In its purest form the two economies can be conceived as closed and working in complete isolation of each other. The traditional economy had been self sufficient for ages; and modern sector may be conceived of as an implantation of a self-sufficient enclave within the economy. This modern sector may grow from its own savings and providing capital goods etc. sector for its sustenance and growth.

24. Lewis conceived of traditional economy as having surplus labour, which implies as having limited land. Hence there should be open or disguised unemployment. On the other hand Myint looked at an economy where land is abundant while labour is fully employed in the traditional sector itself. The wage rate in the subsistence and partly by custom. In purely family enterprise, with no hired workers, the "wage" is the average product, it equals average consumption.

25. In such a setting, the modern sector can develop with a low real wage, compared to the one in developed countries. This may be only a bit higher than that in the traditional sector and may be considered as subsistence wage in the new settings. With low wages, the profit rate would be high and as most of profits would be saved, this implies a high saving and investment rate in the modern sector than in developed countries. This would lead to a high rate of growth. To achieve this the goods required for investment should be produced within the modern sector itself but the extra labour required should be available by transfer from the traditional sector. In consequence the traditional sector will shrink, but whatever is remaining would remain self sufficient. This process over time should eventually employ the whole of available labour in the modern sector only. Then in the absence of any reservoir of the cheap labour power, any further capital accumulation would lead to the increase in the real wage rate. This process

Fig. 1. Lewis' Scheme for Development



would continue until the time the country becomes a developed one. It would have acquired the modern technology and also would have got a real wage rate equal to that of a developed country.

(b) Lewis Development Model: A Diagrammatic Representation

26. Two periods of the functioning of the economy according to the Lewis schema are depicted in figure 1. Upper panel depicts the subsequent period to that depicted in the lower one. Left hand panel represents the traditional and right hand one the modern technology. Total labour in the economy is n+N and land 1+L. In the first period n labour together with 1 land produce an output in the traditional sector. All this output consist of consumption goods appropriated by the labour which consumes a units of goods per labourer.

27. In the modern sector, N labourers, together with L land and K capital produce AN amount of output with the help of modern technology. Out of this a'N amount consist of consumption goods which is distributed to the labour working in that sector. Per unit consumption of labour a' is slightly greater in this sector than that of traditional sector (a), but much less than A - the productivity of labour with modern technology. The remaining output of this sector, viz (A-a')N, is produced in the form of investment goods. Let the output-capital ratio be B. Then the output of the modern sector is also equal to BK. Therefore, the amount of investment can also be written as (A-a')BK/A. Thus the rate of growth of capital in modern sector is B(A-a')/A per period.

28. As this sector is able to take land and capital from the traditional sector according to its requirements, they would also increase in the same proportion. Thus labour and land in the modern sector in the next period would be N[1 + B(A-a')/A] respectively; and in the traditional sector would be [n - NB(A-a')/A] and [1 - LB(A-a')/A] respectively. The decrease in its output would depend on whether labour or land was the bottleneck for production in that sector. If labour was the bottleneck, the output of the traditional sector would reduce by aNB(A-a')/A. This would not reduce the labour productivity in the traditional sector. In this case the standard of living in the traditional sector will not be effected.

29. [To get an idea of the dimensions involved, we may notice that in a developed country using modern technology, the output - capital ratio would be of the order of 30 per cent, and the share of labour government, and capital in the national product would be of the order of 45 per cent, 30 per cent, and 25 per cent respectively. If all the returns to the capital is invested, and if there no other constraining factor, this will give a possible rate of growth of the order of 7.5 per cent. In a developing country, with the real wage rate being one fifth of that in developing countries, and assuming the share of the government to remain the same; these shares would work out to be 9 per cent, 30 per cent, and 61 per cent respectively. With the reinvestment of all the profit and interest earnings it should give the possible rate of growth of the modern sector as 20 per cent per annum.]

(c) The Failure of Development

30. What went wrong with the above model in practice that it could not succeed for a single country in the post second World War period? Below are enumerated a few features that proved so inimical to the working of the above scenario.

(i) Development through loans

31. The establishment of the modern sector in the developing economies was sought to be introduced through granting of "Loans" to those countries for purchasing appropriate machinery, training the requisite personnels, and for purchasing various services required in establishment of those industries. These loans were euphemistically called "Aid", but the grant component in them was not very significant.

32. This implied that quite a bit of surplus from the modern sector of the economy had to be transferred to the industrialized world that provided the loans and expertise. Thus the "higher" profits were not available for local savings and investment purposes. Further, due to transport and trading costs, the capital equipment was more costly in the developing country than in the country of origin and similarly the commodity whose international sale provided the wherewithals for servicing the loan had to be priced sufficiently below its pricein the developed countries to meet the transport and trading costs of reaching its market from the country of production.

33. [to get a feel of the dimension of the problem, we assume that in the modern industrialized country, $1,000 worth of capital is producing gross output worth $300 worth; of which $200 worth goes to labour as wages, and $100 towards capital servicing. The cost of the same amount of physical capital becomes say $1,300 as transport and trading costs are added to it. If the output is to be exported to the industrialized country, its value in the country of origin would be say $230. The capital servicing cost at the rate of 10 per cent per annum would be $130, leaving $100 worth of goods for payment to the local factors of production. Assuming the wage rate to be one fifth of that in the developed countries, wages will absorb $40 leaving only $60 for replacement fund, profits and/or net investment. With 10 to 20 years of working life of the capital equipment, this will hardly suffice even for the replacement of the capital goods. The question of net investment out of that is a bit remote.

34. However, the low wage rate will also mean that the consumption goods as well as the construction part of the capital can be produced cheaply within the modern sector of the country. Assuming that they are produced at about half the cost in international currency, the real wages worth forty dollars in the developed country would cost only twenty dollars in that country, and the value of the capital invested may be only $1,000. That would leave 110 dollars for replacement, profit/interest and net investment. This would be just sufficient for paying interest and accumulate replacement fund. There is hardly anything left for net investment. If the loan is to be repaid then

the accumulation of replacement fund is jeopardised. After the life of that particular investment the country may revert back to its previous status.]

(ii) Importing Intermediate Goods

35. In many cases the technical transfer is only partial. Some intermediate good or part of the product is even then required to be imported. The cost of that has to bear the transport and trading cost which has to come out from the local earnings. This would further reduce the local income in the developing country. Further, exports have to be increased to pay for that current cost. In case the price of export commodity falls from the time the project reports etc. were made it may become difficult to get foreign exchange even to keep the facility, created at such an expense open. Moreover, this will further impair the profitability of the project. Increase in the size of the modern sector thus depends not only on the net investment from outside, current working it requires sufficient foreign market to be able not only to service its foreign loans but also import the intermediate goods and parts required for its current production. Thus we find that in practice, the veil of rampant inflation and changing exchange rates, together with the prevalent techniques of partial economic analysis where price relatives etc. are taken as given, have deflected many an economists from grasping these basic difficulties in the present system of financing the technical transfer to developing world.

(iii) High cost and low productivity of technological transfer

36. The development loans given under "aid" programmes are often tied in one way or other. That increases the real servicing charges for the loans provided as aid substantially. "If over-charges resulting from the restrictive terms of the aid are subtracted from the total amount, the average net flow, according to calculations of the Inter-American Economic and Social Council, is approximately 54 per cent of the gross flow." Santos T.D. (1970). This way substantially increase the servicing charges even if an account is taken of the easy terms on which loans are provided under aid programmes.

37. Further, there are various layers of techniques of production for each industry producing simultaneously in developed countries at any one time. This is the consequence of the continuous technological advancement being experienced in modern times. This is embodied in the fixed capital that was produced after that. Thus the later investments are mostly more efficient than the previous ones. However, the old firms continue producing until the time new firms could produce sufficient to satisfy the demand. The productivity of best technological layer may be as much as twice that of the worst layer still producing. [Popkin J. and Mathur P.N. (1989)]. Many times the technique that is transferred to the developing country is the one that is on its way out in the country of its origin. Thus its productivity would be about half that of the best firm in the industrialized country. If it has to compete with that in the foreign markets, the developing country should provide substantial savings in the wage costs.

(iv) Dependence of modern sector to traditional one for wage goods

38. In developing countries of Africa, we find that the modern sector is mostly confined to non-wage goods industries only. Wage goods for the labour in the modern sector are provided by the traditional sector. This allows the nominal wages in the modern sector to be depressed sufficiently to ensure international competitiveness without depressing the real wages in turn. This solution to the dilema depends on the fact that the traditional sector does not require any imported input in its production process. This makes the cost of the production in this sector independent of the exchange rate. As local real wage rate depends on the nominal wage rate in the local currency and the prices of the wage goods also in the same local currency, it can be made as low as necessary in the international currency as the requirements of the international competitiveness dictate the requirements of the international competitiveness dictate through exchange rate manipulation.

39. This strategy violates Lewis' condition that both the modern and the traditional sectors of the economy are closed viz self- contained within themselves. Really it makes the modern sector as a parasite on the traditional sector. The total output of wage goods the traditional sector can produce is limited by either the availability of land or labour. Voluntary transfer of wage goods from that to the modern sector can be only on a limited scale conducted primarily by the landlord class in the traditional economy who have wherewithals to live a life of luxury. Any extra transfers may have to be accomplished by means of extra taxation of the traditional sector. After a stage it may become necessary to have an autocratic and repressive state apparatus to accomplish this task. No wonder quite a few developing countries end up having dictatorial political regimes.

40. Even then there is limit beyond which such attempts at modernization cannot go. At that stage, bigger developing countries may be able to modernize a part of wage goods sector by subsidising it so as to keep the prices of the foodgrains and other wage goods at the same level as that prevalent before its modernization programme. This will enable them to increase the total output of the wage goods and thus of the modern sector itself. However, the subsidy will have to be given from the savings of the modern sector itself. This would drastically reduce the potentiality of growth of the modern sector of the economy. This strategy of growth would also reach its limits due to the heavy cost of subsidies, leading to too slow growth of the modern sector. With this strategy there would be hardly any possibility of the increases in the real wage rate.

- Its implication of low nominal wage

41. Most of the developing countries are basically exporters of primary commodities. In the international competitive market the countries having low nominal wage rates are at a competitive advantage in selling their export

commodity . This hardly allows it to have a wage rate higher than the subsistence level of living. Usually, this truncated modern sector subsists on the wage goods provided by the subsistence sector of the economy. When the production of the export commodity, entails the use of scarce factor of production in the country, the total production of traditional sector gets proportionately reduced. Thus if in a land-scarce developing country, export commodity like cotton takes up say one-third of the cultivable land, the production of the subsistence crops would be reduced to two-third of its previous production. Their productivity cannot be increased by traditional means not requiring the inputs of the products of modern sectors. This implies that the total labour that can be employed even at subsistence level is reduced to about two-third. We get a situation of chronic unemployment. Thus we find that the creation of the modern export sector leads to the decrease in the total employment in the economy instead of creation of new employment. Similar results will follow if labour instead of land is the bottleneck in the traditional economy. As the labour transferred for working in the export industry would not be available for working in the traditional sector. This would reduce its total output, which would lead to reduction of the total available wage goods, resulting in decrease in total employment.

42. The way out of this is the modernization of foodgrain production. But that requires inputs of fertilizers etc. and the exchange for investment, but also for purchase of its intermediate inputs. That would not allow the nominal wage rates to be as much low as necessary in terms of international currency. Thus it would tend to reduce the competitiveness of the export commodity in the international market. That almost rules out this mode of escape.

43. Almost every developing country tries to increase its export earnings as much as possible, as the foreign exchange is not only the key for development but also for defence of the country as well as for the luxurious living of its ruling class. And once they have contracted international loans for development purposes, the foreign exchange for servicing the loans becomes an international obligation. This induces the country in its turn to try to increase its foreign exchange earnings.

- <u>The fallacy of composition and barrier to the increases of the real wage rates in the long run</u>

44. For increasing the foreign exchange availability, every such developing country will try to increase its exports. They mostly project the benefit of their efforts by assuming constant export prices. (Even World Bank experts going around advising individual countries on how to restructure their economies use a constant price assumption in finding cost/benefit ratios of their recommended policies). However, as all the developing countries are in a similar situation, this will lead to the world supply increasing faster than demand especially if most of these countries are getting financial assistance for this increase in capacity from international agencies. This will lead to

for this increase in capacity from international agencies. This will lead to a fall in the world price of the commodity in question, nullifying part of the effort. Thus an action which is good for one, if others do not act similarly, becomes dubtful in results if others also act in the same way. This fallacy of composition is largely ignored by the policy makers and their international advisors.

45. Ordinarily, real wage rates of formally employed labour cannot be reduced beyond a certain level. This level can be further reduced to some degree in a totalitarian regime. As most of the developing countries try to increase their export earnings as much as they can, in the long run they tend to increase exports until their wage levels are reduced to this level. No wonder that in the pursuit of this aim many such countries find themselves saddled with totalitarian regimes and bare subsistence level of wage rates.

46. With these dynamics, it is highly improbable that these labour- of land-constrained developing countries would be able to raise their wage-rates so high as to transform the price structure in such a way that modern techniques of producing foodgrains become economically feasible. However, whenever there is a world commodity price rise, it may be possible to increase their 'real' wage rate for a short time. But the increase in commodity prices generates a scramble for creating new capacity, until prices settle back to approximate the cost of production based 'subsistence' level wage-rates only.

H. Nominal Wage Rates in Developing Countries

47. To get an idea of how the above factors are effecting various African countries, we give below the average manufacturing wage rates for 1985 for 14 African countries from their Census of Manufacture. (Global Report 1987, UNIDO). For the rest information is not available.

Table II

Average Nominal Industrial Wage in some African Countries 1985

	Country	Average wage (US$)	Percentage of US Av. wage
	U.S.A.	22,694	100.0
1.	Cameroon	4,711	20.8
2.	Central African Republic	2,315	10.2
3.	Egypt	3,835	16.9
4.	Ethiopia	1,381	6.1
5.	Ghana	561	2.5
6.	Kenya	1,708	7.5
7.	Madagascar	1,449	6.4
8.	Morocco	2,883	12.7
9.	Nigeria	7,438	32.8
10.	Senegal	4,126	18.2
11.	Tunisia	3,016	13.3
12.	Tanzania	1,146	5.1
13.	Zambia	2,397	10.6
14.	Zimbabwe	3,594	15.8

48. Most of these countries had nominal industrial wage rates less than 15 per cent of that of USA. These wage rates are of the organized industrial sector. So they must be substantially higher than the average wage rates prevailing in the country. These wage rates imply that to have a subsistence level of consumption for labourers the foodgrains and other wage goods should be so cheap that it would be difficult to produce them with modern technology of production. Therefore in these countries the modern sector is either parastic to the traditional sector, or the agricultural production is heavily subsidised. It may be worth remembering that many countries have not reported the industrial wage rates in their Census of Manufacture, to UNIDO, and so we do not have information about their wage rates. As they are mostly small countries with undeveloped statistical system, it is expected that most of them would be part of this class.

I. International Economic Order as Impediment to Development

48. We have seen above, how low wages in developing countries sustain their labour force, through having lower prices of essential consumer goods. Group I and II of table I included about 90 to 95 per cent of all developing countries. Only a few developing countries depending on high primary commodities prices were in Group III. These results have far reaching implications. They signify that developing countries that adopt the strategy of industrialization via technological transfer that involves a continuous earning of the foreign exchange by export of their produce cannot increase their wage rate beyond a certain proportion of the wage rate in the developed countries. In other words they will always remain underdeveloped countries until the time these conditions prevail.

49. In primary commodities exporting countries, the manufacturing sector is mostly rudimentary. Due to international competition, the price of primary commodity is so reduced that in many cases that sector become parastic to the traditional sector of the economy. In such cases the growth of the modern sector brings only deprivation on the common man as the traditional sector which is primarily a wage goods producing one shrinks due to paucity of land or labour. Further the attempt to transfer wage goods from that sector to the modern one sometimes require autocratic government. The path of transformation of an economy to a developed one through this route is almost blocked.

50. However, some primary mining commodities can sometiems provide where-withals for sustained growth for small countries, if the income is invested in creating Lewis type of closed modern sectors in those countries. Such attempts has been conspicuous by their absence in the development scene during last four decades.

III. THE EXPERIENCE OF COOPERATION IN AFRICA

51. ECA Conference in Abuja in 1987 had discussed the experience of economic cooperation and integration in Africa looked at in the framework of Africa's long term development prospects. We shall only highlight only a few of the observations made there. As will be discussed below the problems of economic feasibility with distorted price structure and the prevalent technical transfer practices have not been sufficiently highlighted.

52. Prof. Makhtar Diouf in his paper entitled "The Essential Role of REgional and Sub-regional Institutions in African Economic Cooperation and Integration", after reviewing the integration experience of the last three decades observes as follows: "The African economic communities all adopted at once the market integration model. In a developed environments like EEC, restrictive trade practices (custom duties, quotas ....) are practically the only factors likely to curb the development of trade considered as a priority objective. But in the context of underdevelopment, trade must not be treated as priority objective as the major obstacles are elsewhere; i.e., in the lack of complimentarity of industrial products, deficiency of the means of transport and communications, absence of adequate means of payment for trade exchanges. Obsession with unequal development in less developed member countries, fear of budgetary losses where carriage charges constitute the bulk of the resources of the states, etc.

53. "On account of these persisting constraints, all African attempts at integration have so far ended in failure. This is the sad fact. We must face the fact that no progress has been made towards market integration. While it took EEC about a decade to attain the status of a customs union, the economic communities in Africa have not yet gone beyond the elementary stage of customs preferential area in the best of cases. And that has happened over a very long period. Up till now, there is neither a custom union nor even a free trade zone in Africa." (P. 88). In similar vain Arther Hazelwood opines, that in the preferential trade area for instance. "there have been reductions in custom charges to establish preferences within the area, but non-tariff barriers in the form of licensing, exchange controls and bureaucratic administration remains."

54. However, it may be noted that there have been no common tariff or barrier for non-community imports in any scheme. European economic community could make the common market as an effective tool for development by putting a stiff tariff and non-tariff wall against the imports of non-community members. Only that gives the necessary protection to the infant industries within the common market enabling them to attain maturity. Even with the most advanced economies of EEC countries, it has till, not given up tariff and non-tariff protection. These barriers are put even against the imports of much less efficient industries of the developing countries. With that experience, it is futile to expect that African custom unions have any chance of success unless and until they are adequately protected from the imports from well developed countries. It is through common tariff wall that infant industries of the

custom union can hope to prevent their infant industries being nipped in the bud. Not only EEC, but USA, which is a big free trade area within its borders, protects its not so infant industries by erecting effective tariff and non-tariff barriers for industrial imports.

55. It must be remembered that the customs union in a developing country would be only an empty shell, unless production of complementary goods are encouraged in the participating countries. Otherwise there would be hardly anything to trade. Main emphasis should be on modernization of both agriculture and industry within the broad basis of resoruce endowment as well as the large market that would be provided by such a union.

56. "More often than not, dependence on the capitalist world economy continues to play an important role in the functioning of the national economy. The subsistence economy still satisfy a considerable part of the total consumption of the population. National economic and social development requires the acquisition of the goods from external markets. This applies to almost all the capital goods, intermediate goods, transport machinery and equipment, electrical goods, spare parts and an increasing amount of consumer goods, including foodstuffs. ...Africa has in the past put practically all her agricultural research and extension funds and efforts on trying to raise productivity of export crops and less efforts into food production. The correction of this misallocation of resoruces must not miss the point of the balanced allocation of the resources across all the economic sectors that will make Africa technologically independent and be able to sustain the reproduction of her material, human, and cultural resources." (Walter J. Kamba; "The Dilemma of Increased Economic Cooperation among African Countries" p. 118).

A. Some Basic Problems of Cooperation in Africa

57. The general problems facing African cooperation have been amply illustrated above. These together with the observations of the AAF-SAP quoted earlier spell out the reasons of the indifferent success of such substantial efforts. Taking into account the theoretical underpinning given above. We shall summarize below the lessons that we can draw from them for the future.

(i) Common Tariff Wall

58. The common market of the developed economies of Europe (EEC) grew successfully behind a high common tariff wall. Though internal tariff and non-tariff barriers have been progressively removed, high external tariff and/or quota arrangements provide a high level of protection for European industries. Interestingly, the raw material requirements for European industries are given free caccess to the EEC markets. In fact their African Associated countries have a free access to the European markets, as they produce hardly anything except the primary commodities and in return they have to give large concessions for admittance of European goods. Similarly,

when United States of America, which was initially a common market of various states, developed economically it was under the protection of high common tariff wall, which it has still not given up. In view of that it looks surprising that none of the African schemes for economic cooperation have made any serious effort in the direction of establishing a high common tariff wall.

59. This is doubly important to the countries like those in Africa. As pointed out above, the modern technologies transferred to the developing countries are not those of the latest vintages. This implies that their production costs would be of a much higher order than that of exporters of similar products in developed countries, as they would be mostly producing from the latest least cost technology. This would make the successful establishment of the new industry through technological transfer in developing country virtually impossible until the producer in the developed country is free to export without any tariff wall.

60. Apart from this, the capital goods as well as quite a few intermediate goods, fuel etc. may have to be imported by these newly established industries in the developing world. Naturally, they have to bear their trade and transport costs. This tend to increase the cost of production of the locally produced commodities. An individual country can protect its pascent manufactures through tariffs but in the absence of common tariff wall, it cannot sell them in cooperating countries as they can get it cheaply from outside world. Thus for intra-regional trade, mutual reduction of custom charges is not enough. This is amply illustrated by so poor an increase in the mutual trade as a result of various schemes of customs union in Africa during last three decades.

(ii) Production based Approach

61. Between developing economies trade in not hampered only by tariff and non-tariff barriers as between developed ones. There must be sufficient production of modern commodities to be traded. Even in developed countries new production processes, which are large and complicated in relation to their economy, have to be instigated by the government. This is most visible in nuclear power industries, space programmes, satellite programmes and other industries at the technological frontier. For the developing countries modernization programmes are of the same level of difficulty in relation to their rather primitive economies. Thus an initiation of customs union or common market without indications of the envisaged industrial structure and expected complimentaries may not be enough. As pointed out in AAF-SAP, the integrated exploitation of regions resources is necessary." The vertable gains of Africa's collective self relaince will, undoubtedly derive from the integration of the production structures. Firstly, it is at this level that the benefits of the economies of scale will be reaped. Secondly, given the natural complementaries of endowments in the region, the integration of the productive structures would generate new forward and backward linkages in the process of regional development. Thirdly, integrating the production structures would alleviate the persistent constraint of financial resources,

as it would enable countries to pool resources and establish multi-country programmes in areas like iron and steel and the development of lake and river basins." (p. 14).

62. This implies that we should not only programme for the production of various commodities, but should also take care of backward and forward linkages among these schemes. This implies that such schemes should envisage the production of all the goods required for the production of these commodities within the common market. If this condition is not satisfied, the success, may even the very feasibility, of the common market scheme would be at the mercy of the vagaries of the usually unstable and unpredictable international market conditions.

63. These production schemes would naturally imply the provision of necessary infra-structure of transport, communications etc. However, care should be taken not to overspend scarce resources on these infrastructure at the expense of production proper. And even for these the least cost options should be adopted for the time being. Thus to develop a motorable highway to serve a small scheme, for which a packed animal transport would have been sufficient for the time being is just to fritter away the scarce resources. To be able to get a World Bank loan for such a profligate project is no justification, as the rare local resources are ultimately required to service such loans, which do not prove to be productive enough to bear that burden.

(iii) Fluctuations in Commodity Prices and Keynes Vision of Primary Commodity-Based World Currency

64. It is well known that many African schemes for economic development were thwarted by the sharp fall in the dollar prices of its major export commodities. The effects of adverse terms of trade were compounded by the phenomenal increase in the real obligations as the value of the international standard of payments increased highly in terms of commodities. For developing countries, not only exchange rate stability is essential but also that of international nominal interest rates. The current interest rates on international obligations are determined in the developed countries' economies and have hardly anything to do with the economic conditions in the developing countries themselves. With inflation in the developed countries these high nominal interest rates translate into low real rates. But with declining commodity prices, they imply a much higher real rate for commodity exporters.

65. The consequent economic crises effecting most of the African countries created a climate hardly conducive to the efforts at economic cooperation between African countries. When the productive capacities of these countries was directed towards meeting these enhanced international obligations and towards 'crisis management for economic survival', the working of long term development plans, of which cooperation has been an integral part, had to be postponed. The insistence of World Bank, IMF and other 'donor' bodies to deal with each country individually discouraged any efforts to search for a cooperative solution to the problems/ of debt repayment as well as to those of

development through mutual support.

66. These gyrations also forced generalised devaluations in almost all the African countries. As AAF-SAP observes, "Generalized devaluation through open foreign exchange markets, currency auctions and large and frequent currency depreciations leads to socially unsupportable increases in prices of critical goods to socially unsupportable increases in prices of critical goods and services; raises the domestic cost of imported inputs and undermines capacity utilization; triggers general inflations; diverts scarce foreign exchange to speculative activities and exacerbates capital flight; worsens income distribution patterns, undermines growth and can result in structural entrenchment of traditional exports through price incentives for such commodities or "tradeables"." (p. 37).

67. Apparently these gyrations in commodity prices and interest rates seem to be determined by the iron law of international markets that cannot be interfered with by a more mortal operator. In fact they are resultant of the primary acceptance of a national currency viz. Gold as the currency of international contracts. This had been adopted at Bretton Woods at the time of the inception of IMF and World Bank in spite of the warnings by Lord Keynes that this system would not be conducive to the world trade and equity. At Bretton Woods, Lord Keynes proposed an International Trade Organization (ITO) as a third pillar of the Bretton Woods system in addition to the World Bank and the IMF. He wanted a world currency that would be based on 30 primary commodities rather than on gold or dollar alone. "In his vision of the world, the balance of payments limitation for economic development, for economic expansion in developing countries, would be either eliminated or very much reduced." Singer H.W., "Keynes, Sears, and Economic Development" IDS Bulletin, July 1989, p. 6-7.

68. It may be noted that in the view of Lord Keynes a currency representing weighted average of the currencies of developed countries, like SDR, would be as defective. For stabilizing the world trade, the currency had to be of commodity standard. How prophetic his vision proved to be? And now we can understand why the financial authorities of the developed world at that time scuttled this third pillar of Lord Keynes' vision while accepting the other two viz. IMF and World Bank.

(iv) Price Structural Problems - Impediments to Balanced Growth and Cooperation

69. The price structure in developed countries is such as to give incentive to entrepreneurs for producing each and all the relevant commodities in the economy using modern techniques of production. The market conditions then ensure that the production configuration is balanced. But the basic condition for the feasibility of the production of all the commodities is the existence of a price structure that makes production of each profitable. To fix ideas, we shall work with a simple hypothetical arithmetic example determining a suitable price structure.

- An Hypothetical Example

70. Let the efficient technology of the industrialized country be given by the following specifications: The economy consists of two commodities - wheat and iron.. For producing one unit of wheat 0.15 units of wheat as well as 0.10 units of iron are required together with 0.4 units of labour. Similarly for producing one unit of iron 0.00 units of wheat and 0.30 units of iron is required, together with 0.20 units of labour. Further, for their production some iron in the form of machinery have to be stored as fixed capital. Let that be one unit for the production of wheat per unit and 2 units for the production of iron per unit.

71. As no producer would voluntarily produce at a loss, the price of one unit of wheat or iron should be greater than or equal to the cost of purchasing the raw materials, the wages paid for the labour employed and usual returns to capital which should include both the interest as well as the depreciation of the capital invested. If the price is higher than this cost, it would imply that the returns to the invested capital are more. Therefore we can put the price as equal to the total cost thus defined. This gives us the following two equations.

$$P_1 = 0.15\, p_1 + r^* 1^* p_2 \pm 0.40\, w \qquad (1)$$

$$P_2 = 0.30_{p_2} \pm r^* 2^* p_2 \pm 0.20\, w \qquad (2)$$

72. Here, the first equation ensures that the price of wheat will cover the cost of wheat as well as iron necessary for its production, as well as the wages of the required labour leaving r as the rate of return on the invested capital. Second equation ensures the same for the producer of iron.

73. It is clear from this equation system that increasing the rate of return on the invested capital (r) would reduce the wage rate (w) and vice-versa. The mathematical upper limit of r will be reached when w is zero. However, the practical upper limit would be reached when w reaches the subsistence level. Similarly, the upper limit of w will be reached when r is zero. Practical upper limit would be when r is at least equal to the rate of interest plus the rate of depreciation. During economic strain, the firm may be able to work even when the rate of return covers only the interest, but that implies that the capital would not be able to be replaced after its working life is over. Some implications of the above considerations are noted below:-

a) Case 1: $w = 0$

74. Then from equation 2, we get r = 35 per cent., substituting the value in equation 1, we get $p_2 = 1.89\, p_1$ or $p_1 = 0.53$.

Thus we get not only the mathematical maximum value of r = .35, but also the minimum price of an unit of wheat as 0.53 units of iron.

b) Case 2: r = 0

75. In this case the solution of the two equations is w = 3.5 p2 and p1 = 1.7 p2 or w = 1.98 p1 and p2 = 0.57 p_1.

Thus we get the mathematical upper limit of wage rate to be 3.5 units of iron or 1.98 units of wheat, and the maximum price of an unit of wheat as 1.77 units of iron.

Thus to have a feasibility of production process, in the esoteric case, when we can have zero wages or zero interest rate, the price of an unit of wheat cannot go down more than 0.53 units of iron and cannot be more than 1.7 units of iron.

c) Case 3: w = subsistence wage say one unit of wheat

76. Solving the two equations in this case, we get r = 0.27; and p1 = 0.82 p2 or p2 = 1.22 p1, Thus w = 0.82 p_2. So when wage rate is one unit of wheat, the rate of return on the capital is 27 per cent, while one unit of wheat will exchange for 0.82 units of iron. Thus the wage rate in terms of iron will be 0.82 units of iron.

d) Case d: r = 0.15

77. Fifteen per cent may be taken as minimum return on the capital consisting of five per cent as the real interest rate and ten per cent for depreciation. Solving the two equation in this case we get

$$w = 2p_2 = 2.47\ p_1 \quad \text{and} \quad p_1 = 1.235\ p_2 \quad \text{or} \quad p_2 = 0.81\ p_1$$

So when the rate of return is put at the minimum of fifteen per cent per annum, the wage rate will be 2.47 units of wheat, and one unit of wheat will exchange for 1.235 units of iron.

78. Thus we see that in the more realistic case of minimum wage rate being the subsistence level of wages, and minimum rate of return being equal to the real interest rate plus depreciation rate, the range of possible wage rate would be one unit to 2.47 unit of wheat, and range of interest rate would be between fifteen per cent and twenty seven per cent.

79. Much more important, considerations of economic feasibility embodied in the two equations above put an effective limits to the movements of the price relatives. We have seen that in the realistic case the price of an unit of wheat cannot become less than 0.82 of that of a unit of iron and cannot be more than 1.235 of it. If the price relativds go beyond these points one or the other commodity would be produced at a loss. In such a situation we cannot expect anybody to create a facility for its production unless the government subsidises it.

80. The above hypothetical example demonstrates that for a given technology, there are limits in which the price structure can fluctuate. [For an exact and general demonstration of this see Annexe A]. If the price structure deviates out of these limits some commodities would not be produc le by that technology. Those would be the commodities whose relative prices fall below the limit. Thus if the price structure in the developing country is significantly different than that in the developed country in the sense defined above, the introduction of the modern technology for producing all the relevant commodities in the developing country is not possible. Here balanced means not only producing the commodities required for final consumption but also those required for meet the needs of capital and intermediate inputs. This situation would not improve by increasing the size of market through custom union agreements. If the price of commodity one is too low, that is below the lower limit derived above, no modern capacity for that industry can be created. The modernization programme would be confined to only a part of the economy. Then inputs from the other sectors would come mostly from the output produced through traditional techniques. [They cannot be imported, without subsidies, as they will have comparatively lower price in the importing country itself.] It would have been immaterial, if the production through traditional techniques could have been sufficiently increased. But the constraints of land or labour are already limiting the total production that can be produced through the traditional techniques themselves. This would put an upper limit to the production of the modern techniques also as the essential inputs would be in short supply. Effectively, it implies that the modern sector would develop partly as a parasite on the rest of the economy. [See Annexe B for a technical discussion of production possibility in such a situation.]

B. Situation in African Countries

81. We see from the table 1 above, that the price structure in developing countries is fundamentally different from that of the developed world. For instance, the ratio of the price of cereals to that of capital equipment and liquid fuel is found to be only 27 per cent and 29 per cent respectively of the similar ratios for USA. In the circumstances, it is futile to think that mechanisation of food grain production and or use of chemical fertilizers in them would be feasible in these countries. With the low productivity of labour as well land in the traditional methods of cultivation, it is not possible to also support the labour in modern production sector, without increasing the foodgrain productivity. Attempts to do so have naturally resulted in near famine conditions in various parts of Africa. The obvious solution to this is the adoption of labour saving techniques viz. mechanisation. But with capital equipment and fuel being about four times the cost in terms of output (cereals) than in the developed countries, this is hardly a feasible alternative. The way out of this impasse seems to be to adjust the relevant price structure such that it becomes similar to that of the successful developed economies.

C. Its implications for a customs union

82. In the prevailing price structural situation, an economic co-operation arrangment may result in the modern sector of one country sustaining itself at the direct or indirect expense of the traditional sector of another country. Further, the total development of modern sector of both the countries combined is limited by the extent of supporting traditional sector in both of them. Therefore, an economic co-operation may imply that the potentiality of modernization of one country is passed on to the other co-operating country.

83. This is obvious for the countries directly subsidising food or other inputs like fuel and fertilisers. For instance if Egypt exports some commodities to another country not subsidising food grains, the market price of its exports would reflect its low wage rate made possible by the huge food susidy that Egypt provides. This implies that indirectly Egypt would be subsidising the consumption of that exported commodity by the partner country. There is a limit to such a philanthropic behaviour even when subsidising country does not consciously appreciate the intricate mechanism that is leading to such an unsavoury result. No wonder that various co-operation schemes have not come out in flying colours.

84. This is about the direct subsidies. However, there are many indirect subsidies which disguise the overall high costs to the country as reasonable costs for the individual producers. For instance, in the table below fertilizer subsidy rates for a few countries are given. With that subsidisation the farmer may be induced to produce the crop but the country indirectly subsidises the price of those crops. Of course it would not like to subsidises the co-operation schemes have not like to subsidise the co-operating country through these indirect subsidies. It may be well worth remembering that all subsidisation is a transfer from one sector to another. So supporting one sector of the economy through subsidisation hampers the growth of another sector

IV. The way Forward - A Complete System Approach

A. Additional self sufficient economy

85. Looking into the basic economic reasons for the indifferent success, both tasks of economic development as well as co-operation among African countries seem to be impossible under current international economic system. The crippling disabilities of these development efforts stem from the fact of abject dependence of these countries on gyrations in the value of the interntional currency in terms of real commodities; the inevitable requirement of imports for initiation of modernization which are only available in terms of foreign loans to be paid in the volatile international currency; the distorting effect of export promotion on price structure; parasitic development of unbalanced modern sector on the traditionally grown food crops; etc. In the present state of geo-political climate, it is not possible for currently developing countries to free themselves

from these shackles of underdevelopment syndromes. The inherited debt obligations would have to be met. There may be some scope of renegotiation on modalities. Efforts may be made to scale them down. They may be sought to be redesignated in terms of exportable commodities at their values at the time of contracting those debts compounded at the real interest rate prevailing during the intervening period but the basic character requiring production for exports with consequent disturbance of the structure of production, prices and incentives in the developing countries would remain.

86. The way forward can be an effort that allows these economic activities to continue as they are but at the same time build up additional new activities that do not suffer from these economic disabilities. It can be conceived as Liwis's self-sufficient modern sector growing on its own stem unconnected and unhampered by the economies outside its confines. To succeed it should be insulated not only from the prevalent international economy but also from the exising distorted economy of the country itself. This insulation is specially necessary as it should operate with a price structure derived from the modern technological relationships similar to that prevalent in the presently developed countries. That will not only make the production of all the complimentary commodities possible, but will also give sufficient incentives to the entrepreneurs in the system. But for this complete system to work in an environment of differing national and international price structures, an effective insulating device would have to be deployed.

87. However, a part of the economy cannot be so completely isolated from the rest of the economy. So the necessary suitable contact points have to be carefully devised so as not to jeopardise its basic character. Only that will allow it to develop independently without being pulled down by the rest of the system.

88. For initiating such a complete system, the first precaution to be taken should be to stand clear of international «Aid» or Loan market. Grants of course would be helpful. Similarly loans to be serviced in terms of identifiable commodities. However, loans to be serviced in any so called international currency would be fatal to any development scheme. Outside co-operation could only be used if it becomes a part of the system. This implies that any obligations contracted should be serviced only in terms of the output of the system itself.

B. A commodity standard currency

89. As the envisaged additional complete modern production system would be having a different price structure than that prevailing currently in the economy, it may have to be managed with a new partially convertible currency. As pointed out earlier, the relative prices in that currency would be determined in relation to the modern technology to be adopted.

Obviously this currency cannot be completely convertible as that will lead to large scale arbitrage operations due to differences with the national and international price structures. This would jeopardise the insularity of the system and will not allow this island of balanced modernization to develop.

90. Further, the backing of this currency would have to be the final output of the system. Thus it will be similar to Keynes' commodity standard. Only there is no need to build in all the 30 commodities envisaged by Keynes but it may depend only on those which form the final product of the complete system planned at the time. Outside help may be solicited in terms of bonds to be serviced in the system's currency based on the commodity standard. There would be no apparent harm in these bonds are marketable and are quoted in internal stock exchanges. Really, some industries or countries who want to be assumed of long term supply of these commodities at unchanging price may prefer to go in for such bonds. However, there would be restrictions on the number of the bonds that can be issued as they would be serviced by the net output of the system after meeting its current costs.

91. This currency would be issued only to the persons and institutions working within the system for the services rendered. As such it can be sold by them in the open market. The purchaser would be entitled to purchase with them only the output of the system. This is not likely to effect the working of this enclave of balanced development of modern industry and agriculture.

92. Thus we can build a wall of a new currency system to protect the new mutual cooperation effort for building up a growing enclave of modern technology and consequent high productivity, insulated from the cold winds of international economic climate and consequent distortion of the price structure inimical to modernization of all the sectors of the economy. Given time, this enclave should so expand itself as to subsume the whole economy of the cooperating developing countries within its confines. Then the whole of the African continent would become a part of the developed world.

V. PERSPECTIVE OF COMPLETE PROJECT WIDE COOPERATION:

A. MODULAR FORMAT FOR AFRICAN COMMON MARKET

A. Commission for modernization project

93. Now in brief we may look into the format to this complete system approach to the additional economic activity of modernization in Africa. This activity may be organized under a commission which may be given jointly by cooperating countries a charter to organize and supervise these

activities. Under the restrictions specified in the charter, the commission should be left completely independent to organize its activities. The charter may be reviewed only after a suitable laps of time.

94. The commission may be charged in the first instance to organize the production of commodities required to satisfy the «Basic Needs» of the people of the participating countries. They may have not only to organize the production of these commodities but also of all the commodities required as intermediate goods in their production as well as the intermediate goods required in the production of these first order intermediate goods and so on. This implies a complete system approach to the production of «basic needs».

(i) Agricultural Education Research cum Extension University

95. For illustrative purposes, we shall confine to the basic needs of food, clothings, shelter, education and health only. Of these, in the African context food is the most important. Not only because the famine is becoming endemic on the African continent, but also as pointed out in the theoretical section above, the availability of the food grains is proving to be a real bottleneck to both development and cooperation efforts. Thus the commission would have to assume a structure similar to the Indian State Agricultural Universities or existing Land Grant Colleges of USA. At the core of the commission's institutions would be an university, that will not only train agricultural experts, technicians, and farmers into modern agricultural practices, but would also conduct research developing varieties, agricultural practices etc. suitable for the area concerned. It should be allocated sufficient land for experimental farms, for growing of the improved seeds as well as for training of farmers in the intricacies of the modern agriculture. If experience of Indian State Agricultural Universities is any guide such universities should soon become self-financing. If the price is right they would get sufficient income from the output so as to support research and extension expenditure after meeting all the costs involved.

96. The trained farmers from this university would be given land,on lease or rent, to develop singly or cooperatively modern more productive agricultural practices. They will thus progressively increase the area under more productive agriculture. An amount of their produce would be purchased with the currency of the system that would allow them to purchase the necessary inputs for the enterprise and the basic goods for their consumption, as well as capital goods for the expansion of their business at the prices prevailing in the system. They may also purchase the bonds newly issued to establish newly trained farmers in the business. They would be free to dispose off the remaining of their output in the countries currency at the prices in the country outside the system. This would allow them to purchase luxuries at the market price of the national market. Of course the luxuries that they would be able to get for their extra

produce would be much less than a corresponding farmer in a developed country but that is the temporary comparatively less affluence that he may have to put up with during the transition period. Of course that would increase the availability of foodgrains in the country to be used by the workers in other modern or traditional activities developing in the country outside the system. As shown earlier, this will lead to extra-employment and well being of the non-scheme part of the economy. The rent paid by these attached farmers would enable the University to keep its scientific extension work to them as is done by the Land Grant Colleges in USA. It will also enable the University to meet its obligation of servicing the bonds that enabled it to be established in the first place.

97. Once such an agricultural university starts securely operating, it would be able to expand the land under modern methods of food production at the rate of 10% per year. For the land reclamation as well as the training of the personnel can easily be accomplished at that rate of growth. Thus we expect that between ten to twenty years almost all the food production in the participating country would be with the help of modern techniques of production, banishing the threat of famine for ever as it has been done in USA, EEC, or Japan.

(ii) Perspective for non-food basic needs

98. The commission would look after other «basic needs» of the people working on this modernization project under its supervision. Basic needs for health and eduction would of course be provided under university supervision as is a common practice for such large institutions. The question is of providing other necessary consumption goods. These goods have been traditionally classified as other foods, beverages, tobacco, clothing, footwear, and housing. Other food include meat, fish, milk and milk products, oils, fruits and vegetables. We can expect animal husbandry, fruit and vegetable gardening to be subsumed under the activities of the university itself. Similarly, housing is local activity and would have to be looked after locally. All these activities would be organized within the price structure corresponding to the currency of the project, and the people providing these commodities and services would become part and parcel of the project itself.

(iii) Textile and leather institute

99. For the necessary production of these basic goods, independent institutes similar to the agricultural university in other locations or countries can be opened by the commission. They may have to enter into long term contract with the university for transactions in the currency of the project. Strict adherence to the price structural norms between these consumption goods and food grain products in the currency may not be an essential condition. Really some variation in this regard for consumption goods may be desirable. That will require much less supervision

on the individual units and encourage competition among them both with respect to quality and price. Price structural problems become crucial between intermediate inputs and outputs. Then it becomes a question of the basic feasibility of the modern techniques over the whole spectrum of interrelated goods and thus of the possibility of modernization itself.

100. The development of these complementary units in cooperating countries would ensure the simultaneous modernization and development of the whole of the common market. With the long term arrangements with the agricultural complex, the paucity of modernization would be affectively removed.

(iv) Intermediate goods

101. As pointed out above, the main problem is the availability of intermediate goods at a price which makes it worthwhile to produce goods using modern technology and it is the modern technology that enables sufficient output to be produced from the available land or labour. Main intermediate goods used in modern technology are fuel, chemicals and machinery and metal products. In agriculture it will be liquid fuel, fertilizers, pesticides and tractors and other agricultural machinery. We may recall that the ratio of cereal prices to that of liquid fuel considered in UN purchasing power parity study (KHS 1982) as compared to prices in USA were found to be only 28% in Malawi, 20% in Kenya, and 28% in Zambia. These were the only three countries of Africa in their sample. However, we can expect the results of similar order in other countries. Similarly, the ratio of cereal prices to that of tractors have been found to be 33%, 41%, and 27% respectively. The study did not investigate the price relatives for fertilizers, pesticides etc. but we can presume that they would also be of a similar order of magnitude as they are also imported in the same way.

102. The study has only one oil producing country in its sample - Iran. There the cereal price to liquid fuel price ratio was 135% to that in USA. This implies that a profitable long term arrangement can be done with oil producing nations within African and Middle East to provide liquid fuel in the project currency based on commodity standard. Most of these countries are facing long-term shortages of food grains. For instance Sharjah chamber of commerce has warned that the Arab world could face a famine by the year 2000 unless steps are taken to increase food production. According to its deputy chairman, Hassan Al-Nouman, Arab food import bills have risen sharply from $2.20 bn in 1970s to $25 bn today. Some experts believe they will increase to between $125 bn and $200 bn by the end of the century, when the Arab world's population reaches 260 m. «(OPEC Bulletin Jan. 1989, p. 40-1)». The advantage of participating in such a scheme for oil producing countries is that all production under the scheme is incremental. It will not effect their usual production and income in any way. It will only provide an outlet for the extra production of oil produced at a marginal cost, and in return

they would be able to gain a much needed assurance of assured supply of essential commodities.

103. Thus the extension of the complete project wise cooperation to countries beyond the confines of African continent may be in the long term advantage of all. On the basis of such South-South cooperation schemes, we hope that the present underdeveloped countries would be able to achieve economic development overcoming the price-structural impediments that have frustrated their efforts at development during all these decades. This would also imply that the extra agricultural production possibilities of Africa would be able to feed and support all the cooperating countries - African or non-African to the extent of their contribution of these cooperative efforts. These potentialities of Africa are well known. A recent FAO study has shown that even at the intermediate level of technology the continent could feed up to five times its population. (FAO/UNFAP/IIASA: «Land, Food, and Population. «Paper presented to the twenty-second session of the FAO Conference, Rome, No. 1983).

104. Thus for fuel and fertilizers the partnership can be extended to oil producing countries. As all this activity would be additional to word economic activity that would have been otherwise, this will provide an additional output of oil to oil producing countries over and above any quota that they may impose due to international oil market. The effective price of this extra output of oil for the oil producer would in any case be much higher than its cost of production at the margin. The industry of fertilizer would be extra to be developed in one of the cooperating country. Or if it is to be developed in the oil producing country itself it will give it a chance to develop a downstream industry with a captive huge potential market of Africa.

105. Similarly, for training, research and machinery there can be, in the beginning an arrangement with countries like India. India, for instance, has not only established highly successful State Agricultural universities, but has a large supply of technical and scientific manpower. Similarly, its machinery and metal industry is not only well developed but also suffers from large scale capacity utilization problems. Thus it can contribute to the endeavour with only a marginal cost to itself. In return, the commodity imports would be useful to it in the long-run. Though with the present level of income and its current distribution India is self-sufficient in food grains, it considers about 30% of its population below 'poverty lines'. This implies that thirty percent of the population does not get sufficient to eat. With development going apace, there is thus a huge pent-up demand for food commodities in the country. With this scheme India would be able to satisfy that only with the higher utilization of its already existing human, and capital resources.

106. These types of arrangements will not be for a very long period. Given time all these facilities may have to be developed in the cooperating

countries of the Africa itself. But to get started, a help from countries like India would give a big push. Until the time all these capacities are created these commodities may be purchased by the medium of commodity bonds. It will be seen from Annex C that even if the immediate aim is to satisfy the basic needs only, almost the whole gamut of commodities would have to be produced as they are required as direct or indirect intermediate or capital inputs. A programme for introduction of their production in various cooperating countries would have to be worked out carefully. During the interim period arrangements with more technically mature countries of the South may be necessary for successful completion of the scheme.

VI. RECAPITULATION - BASIC MECHANISM FOR GROWTH AND COOPERATION

107. We have seen above that the exports of Africa are not only based on low standard of living of the labourer but also on comparatively much lower prices of the wage goods. These two together made the prices of the export commodities so low that they are able to complete in the international market with the output of similarly impoverished countries. This results in so low prices of the wage goods in general and foodgrains in particular, that modern techniques of production with the inputs of fertilizers etc. can not be profitably used in their production. Therefore, these countries have to rely on traditional low productivity methods of production for wage goods. This puts an upper limit to their production, and hence on modernization process. Automatically an effort to modernization and export promotion leads to increasing unemployment and famine type conditions. Thus until the time the current international economic order lasts, the traditional methods of development do not hold any promise of long term development and may lead to increasing misery exhibited by debt problems and famines.

108. In the current politico-economic conditions, the way out seem to be to let the current economy as it is, but build an additional economy over and above the existing one, in which a price structure appropriate to modern technology prevails and which is based on Keynesian concept of commodity standard. For the creation of such an additional economy, economic cooperation among developing countries on a wide scale may have to be sought. Some developed countries subscribing to the price strategy may also be invited to join. Such cooperative efforts have a potentiality of bringing out the developing countries out of their current economic predicament.

109. A blueprint for such a scheme together with its theoretical framework have been outlined above.

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PRICE DETERMINATION AND ITS STRUCTURAL VARIATION

BOUNDARIES OF PRICE STRUCTURAL VARIATIONS

In order that a producer may continue to produce a commodity, the commodity price should be able to meet its cost of production. This implies that the price of commodity should be more than or equal to the cost of raw materials, and intermediate goods, both those produced within the economy as well as those produced outside the system. Further it should meet the processing costs; wage costs; as well as the interest and normal returns on the invested capital or normal profit. Only that will allow the producer to remain in business.

Thus if there are n commodities and services, and p_i is the price of a unit of commodity i, then p_i should be greater than or equal to

$$\left[\bar{a}_{1i}p_1 + a_{2i}p_2 + \ldots\ldots\ldots + a_{ji}p_j + \ldots\ldots + a_{ni}p_{n-}\right] + vM_i + rK_i + wL_i \quad (1)$$

where a_{ji} is the amount of j th. commodity used as input in the production of one unit of i th. commodity; and M_i, K_i, and L_i are the inputs produced outside that economy, capital at charge and the labour units used up in the production of one unit of i th. commodity. v is the rate at which outside inputs are pruchased in terms of numeraire that is taken as commodity number 1. Further, r denotes the rate of returns to the capital (including interest etc.), and w is the wage per unit of labour.

We shall have n equations like the equation (1) above - one for each of the n commodities. These set of equations would set effective upper and lower limits to the price that any commodity can command. If the price is too low, the equation relating to the feasibility of the production of that commodity would not be satisfied, while if it is too large it will make its use as an input in the production of other commodities non-feasible. However, this upper limit does not apply to those luxury commodities that are not used as an input for any other commodity. Their price can be as high as the market would bear.

This Price system can be written in matrix notation as follows.

$$P\,[I-A] \geq vM + rK + wL \qquad (2)$$

where P is the row vector of prices, A is the Leontief Input-Output Matrix representing the domestic inputs per unit of outputs, M is the row vector giving outside inputs per unit of production of various commodities, and K and L are capital and labour row vectors respectively. All terms on the right hand side of the equation (2) are positive. First we should look into the implications of the right hand side being greater than zero and then introduce the effect of their being positive.

From eq 2, we get $P[I-A] > 0$ (3)

We want to find out the relationship between prices of i th and j th commodities viz ebetween p_i and p_j. Let us partition the vector P and the matrix A into two sets. Let P^1 denote the vector (p_i , p_j); and P^2 denote the remaining part of the vector P. Let A^{11}; A^{12}; A^{21}; and A^{22}; be the corresponding partitions of the matrix A. Then the equation (3) can be written as:

$$[P^1\ P^2] \begin{bmatrix} (I-A^{11}) & -A^{12} \\ -A^{21} & (I-A^{22}) \end{bmatrix} > [0\ \ 0] \qquad (4)$$

This gives the following equations:

$$P^1 (I - A^{11}) - P^2 A^{21} > 0 \text{ and}$$

$$P^2 (I - A^{22}) > P^1 A^{12}$$

or, $P^2 > P^1 A^{12} (I - A^{22})^{-1}$ (5)

From the first equation we get:

$$P^1 (I - A^{11}) - P^1 A^{12} (I - A^{22})^{-1} A^{21} > 0 \qquad (6)$$

or, $P^1 [I - A^{11} + A^{12} (I-A^{22})^{-1} A^{21}] > 0$ (7)

The matrix within curly brackets is the sum of positive matrices, and therefore is itself a positive matrix. Let us call it as matrix C. Then equation (7) becomes:

$$P^1 \left[I - C \right] > 0 \qquad (8)$$

Expanding, this gives:

$$P_i \ (1-c_{ii}) - P_j \ c_{ji} > 0 \text{ and}$$

$$P_i c_{ij} + P_j \ (1-c_{jj}) > 0$$

$$\text{or, } \left[c_{ji}/(1-c_{ii}) \right] < P_i / P_j < \left[(1-c_{jj})/c_{ij} \right] \qquad (9)$$

This clearly gives the range between which the ratio of the price of the i th commodity with j th can move. If this ratio becomes less than the lower limit or more than the upper limit, it will not be possible for the producer of one of the commodity to even meet the cost of the intermediate goods required for the production of that commodity. By means of the procedure similar to the above, twe can find the range in which any price ratio should remain so that the production of the respective commodities remains feasible.

Recalling equation 2, we find that the right hand side should not only be greater than zero, but also greater than labour cost, the return on capital as well as the cost of intermediate goods purchased from outside the system. How does this effect the range of variability of the price ratios? First let us see the effect of the requirements to purchase intermediate goods from outside the system, as they are necessary inputs. As the first commodity is the numeraire, their cost can be accounted in terms of p_1. So from cost point of view, as in equation (1) p_i should be greater or equal to

$$\left[(a_{1i} + vM_i) p_i + a_{2i}p_2 + \ldots\ldots\ldots\ldots + a_{ji}p_j + \ldots\ldots\ldots + a_{ni}p_n \right] + rK_i + wL_i \qquad (10)$$

Thus the equation (2) can be written as

$$P (I-A') >= rK + wL \qquad (11)$$

where input-output matrix A' is the expanded matrix A, where the elements of the first column have been enhanced by the addition of the vector vM. It may be noted that each element of A' is greater than or equal to the corresponding elements of the matrix A.

Analysing equation (11) in the same way as above, we get, corresponding to eq (8), the following,

$$P^1 \; \underline{/}\bar{} \; I - C' \; \bar{\underline{/}} \; > 0 \qquad (12)$$

where C' is similarly derived from the matrix A' as C was derived from matrix A. It will be seen that each element of C' is greater or equal to the corresponding element of C. This gives us the range of the ratio between the prices of i th and j th commodity as follows:

$$\underline{/}\bar{c}'_{ji}/(1-c'_{ii})\bar{\underline{/}} < p_i/p_j < \underline{/}\bar{(1-c'_{jj})/c'_{ij}}\bar{\underline{/}} \qquad (13)$$

As each element of C' is greater than or equal to the corresponding element of C, equation (13) indicates a lower range to the possible movements of the price ratio than equation (9). In general we can say that a positive value on the left hand side of the equation (2) will reduce the range of variation of the price ratios. The greater is that value, the more will be the reduction in that range. Thus if there is a minimum wage specified the range would be further reduces.

The range specified above is to be considered as technologically given. No economic manipulation would allow the price ratios to transcend it. Any attempt to do the same would only disrupt the economy either by creating inflationary or deflationary pressures or bankruptcies closing down certain essential industries. Within this range the value of the price ratios would be determined by the economic conditions determining the rates of factor payments.

DETERMINATION OF APPROPRIATE PRICES

If we assume that all extra income is absorbed in the profits, we can ha· the sign of equality in the equation system (2). This gives us

$$P = vM + rK + wL \quad /\bar{I}-\underline{A}/^{-1} \qquad (14)$$

A being the input-output matrix, the matrix $/\bar{I}-\underline{A}/^{-1}$ have all its elements as non-negative by a well known theorem on Leontief matrices. This means that the value of P can be written as the some of the three components $vM\ /\bar{I}-\underline{A}/^{-1}$; $rK\ /\bar{I}-\underline{A}/^{-1}$, and $wL\ /\bar{I}-\underline{A}/^{-1}$. Of these the first one is exogenous that is outside the working of the economy. However, the other two will be effected by the rate of return or wage rate the economy choose to give itself. Really, as soon as either the rate of return or the wage rate is determined the other can be derived as a residual. And so there is only one decision is to be made at the economy level. If the economy tries to make both decisions independently, that will lead to either inflationary or deflationary tendencies.

In a developing economy, we may have to determine only the minimum wage rate. Then whatever the profit rate comes out is to be reinvested in development. The priority should not be to have a given profit rate as that may either depress the wage rate to morally, socially and politically unacceptable level and/or create inflationary pressure that may nullify most of the development efforts.

Thus this methodology will give a schemata for determining an appropriate price system for the economy.

PRODUCTION POSSIBILITY IN A DEVELOPING COUNTRIES' ECONOMY

1. Introduction

We have distinguished three main types of developing countries that crucially depend for their current production and growth on their export earnings. The changes in commodity prices effect the whole fabric of their economies. They are: (i) those having their traditional production restricted by the availability of labour force; (ii) those whose traditional production is restricted because of the availability of suitable land; and (iii) those every item of whose production require some imported inputs directly or indirectly, and thus having the extent of their output restricted by the availability of foreign exchange.

We shall deal below the effect of changing value of their exports on the first two types of developing economies. However, formal analysis of land constrained economy is similar to that of labour constrained economy, and if we substitute in the description of the later land for labour, we get a corresponding description of it. Hence, we shall not repeat the arguments in that regard.

2. Labour - Constrained Economies with Traditional Techniques for Producing Wage Goods

Let there be three sectors in the economy. One producing wage goods (foodgrains etc.), another producing export commodities, and the third producing capital and other non-wage goods for investment, government and private consumption. We further assume that all the three sectors are completely vertically integrated but for the imported inputs required for production. Thus there is no indirect domestic cost. As total income of the economy will be the sum of the incomes from the individual sectors. Therefore if,

1_f, 1_e, and 1_c be labour employed in the three sectors, then total income Y is equal to

$$wl_f (1+r_f) + wl_e (1+r_e) + wl_c (1+r_c) \qquad (1)$$

rf, re, and rc being non-wage/wage ratios for the three sectors.

And further assuming, as first approximation, that wage-earners do not save, then total production of wage-goods should be equal to total wages. Therefore,

$wl_f(1+r_f)$ is greater than or equal to $w (1_f + 1_e + 1_c)$ (2)

If the value of export goods produced by a unit of labour is k dollars and it requires q dollars worth of imported inputs,

$$w(1\pm r_e) = k-q, \text{ or } w = (k-q)/(1\pm r_e) \qquad (3)$$

This gives wage rate in terms of international money. However, the real wage rate is independent of the international prices as the price of the wage goods produced by one labourer will be $w(1\pm r_f)$ irrespective of the rate of exchange.

So the purchasing power of a labourer is unaffected by changing exchange rates. But increasing world commodity prices or foreign aid for development may increase developmental efforts as well as non-wage income to be spent on non wage goods, increasing in its turn the labour engaged in the production of investment goods. In a labour constrained economy, this will be at the expense of labour engaged in producing wage-goods. This will reduce the wage goods availability. Further, getting the wage goods for the consumption of other labourers from the producers will imply the increasing of taxes on them, for they do not require or even cannot afford any non-wage goods produced by that sector in exchange. As this implies high handed treatment of traditional farmers, it goes a long way towards understanding of the phenomenon of non-democratic governments in most of developing countries. This will also lead the country towards famine like conditions where a downturn of usual yearly fluctuation in yield may be sufficient to trigger off a widespread deprivation and famine.

The situation does not improve, when the world prices of export commodities fall, as the falling prices do not lead to the reduction in production, as envisaged in the neo-classical supply curve. But behaves perversely as the reduction in export earnings, induce the country to increase production of export commodities by employing extra labour. This results in the reduction of labour engaged in the production of wage-goods with similar disastrous consequences.

3. A Diagrammatic Representation of Macro Relations

In figure 1, labour is measured on the X axis, positive Y-axis measures the foreign exchange availability, while in the negative direction it measures the output of wage-goods. OA represents labour employed in export production, AB that employed in modern activities and development etc., and the remaining BC represent that left to produce wage goods through the traditional techniques. CD represents the total output of the wage-goods industry and therefore the tangent of the angle CBD represents labour productivity in the traditional wage goods industry.

AG represents the net foreign exchange from exports produced with the help of labour OA. That foreign exchange is used as inputs in the modern activities of development, capital creation, industrial production through modern techniques etc. The extent of these activities and thus labour employed in them depends on the availability of foreign exchange. The tangent of angle HAB represents the foreign exchange required for employing one person in these activities. As foreign exchange available is GA = HB, the total labour employed in these modern activities will be AB.

As CD, the total wage goods produced, should be sufficient for consumption of all the labourers, the tangent of angle COD represents the real wage-rate in terms of consumption goods. AJ and JG represent the wage and non-wage income in export industries respectively. Then AJ is the total wage of OA labour in international currency. So the wage-rate in international currency is tan AOJ, the real wage rate is tan COD. The equality of the two gives the purchasing power parity of wage-goods in international currency.

4. Effects of Export Commodity Price Increases

In Fig. 2 we have super-imposed on Fig. 1 the macro-economic situation after an increase in world commodity prices. The latter situation is depicted by dashed lines. The increase in world prices of export commodities is depicted by increasing the angle ADG to AOG'. Thus with this increase the net foreign exchange availability has increased from AG to AG'. Availability of this extra foreign exchange makes it possible to increase the modern development sector. The extent of this we find by extending line AH to meet the parallel line to OC from G', viz. F'G' extended to H'. This implies the labour employed in this sector increases from AB to AB', leaving only B'C labour for wage-goods production.

This will reduce the output of wage-goods to CD' from CD, where B'D' is parallel to BD. This implies that the real wage will reduce from tan COD to tan COD'. This will tend to put workers more and more at subsistence level, which may turn into virtual famine in years of bad crops. As annual fluctuation of weather will make the point D' up and down the line CD and lower the angle COD', the more vulnerable are the labourers to this fluctuation.

Foreign loans or 'aid' will have similar effects. Though they would not increase the foreign exchange earnings, the increase in the availability of foreign exchange will shift B to B', with all the above mentioned consequences. However, if this is accompanied with food aid of the order DD', the deterioration of the real wage-rate can be suspended.

These are short-term effects. In the medium term, with high export commodity prices there will be a tendency to increase the capacity and production of the export commodity, which will tend to move A and B to the right. This will aggravate the already bad situation.

5. Effects of decreases in commodity prices

The short-term effects of the decrease in commodity prices should be opposite to those just discussed. As pointed out above, the decrease in commodity prices only induces the developing countries to produce more of the export commodity to fill the gap in their foreign exchange earning, the employment in the export commodity production will not decrease. However, that in the modern sector will decrease. So AD will contract. This implies, not only, that development efforts will have to be scaled down, but also quite a bit of fixed capital created with past efforts may have to be left unutilised.

However, it does not imply that the labour employed in the rpoduction of wage-goods will immediately increase. Usually the movement of people from rural to urban areas is a much more natural and easier process than vice versa. Those who have lost their rural moorings, find it very difficult to adjust back to the low income and much more back-breaking work of traditional agriculture and much more so as they have lost the expertise and lores of the traditional agriculture of individual localities passed on from generation to generation. After all that lore contains the know how of agricultural production of the area. A per son ignorant of that can only reutrn to agriculture after spending a period in agricultural school. Return to agriculture from urban occupation has only been attested when a person goes to practice agriculture with modern techniques learned in colleges or in modern farms. Until and unless the price structure changes to make such agricultural practices feasible, this is not one of the options.

So, decreases in export commodity price usually treates unemployment to the extent of the decrease of labour force in the modern sector. Sometimes it is camouflaged as employment in the informal sector. However, in the medium term, the situation may become different. The reaction of countries to the decrease of world commodity prices is likely to increase the production of export commodity. The restructuring of the economy would imply rightward shift of A and a contraction of AB. The end result may be that the position of B remains more or less the same. If it is the same, it implies a contraction of AB of the modern development, sector, leaving the wage rate unaffected. However, if the country is able to increase its foreign exchange earnings so much as not to affect the modern sector much, we may expect B also to move to the right, further squeezing the wage-goods sector. This is illustrated in Fig. 3 below. The new situation is given by dotted lines and double dashed letters. The explanation of the figure is obvious.

6. Land Constrained Developing Countries with Traditional Technique of Foodgrain Production

Similar analysis can be developed for the developing countries having land as the bottleneck instead of labour. If we read the above four sections by substituting land for labour we get the macro economics of the land-constrained economy. Thus total land resource can be conceived as distributed into three uses: production of wage-goods, export commodities, and directly or indirectly for the production of modern commodities. The first does not use an imported commodity directly or indirectly as an intermediate commodity, while for the production of the last some direct or indirect input of the imported commodity is essential. As in the case of a labour-constrained economy, we see that the higher the demand for exports, the less remains for the production of the wage goods. And the employment of labour and, hence, the total production with the available techniques of production depend on the extent of the effective availability of the labour force.

Further, as in the previous case, the production of wage goods per unit of land available for the production of the wage goods cannot be increased using traditional techniques of food production. Modernizing the technique

FIGURE I

Macro Economics of Labour constrained Developing Econ

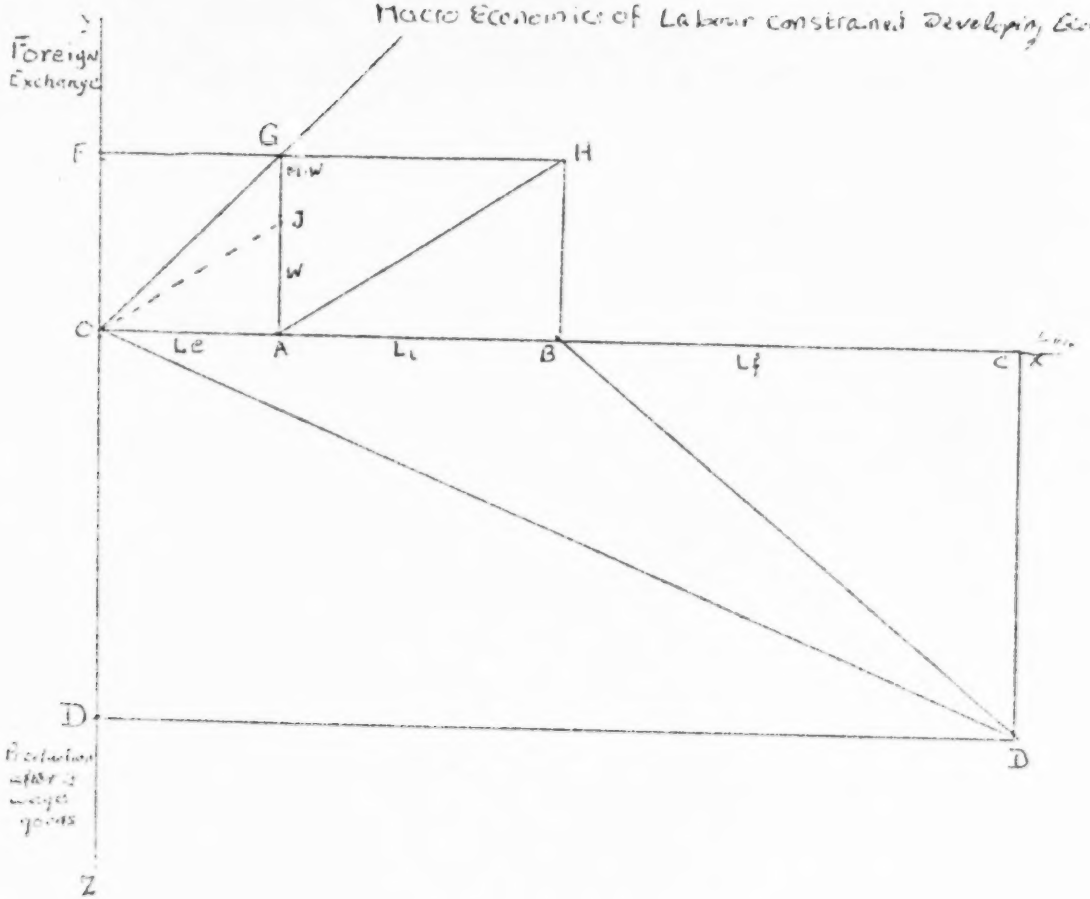


FIGURE II

Macro Economics of Labour constrained Developing Economy with increasing commodity Prices

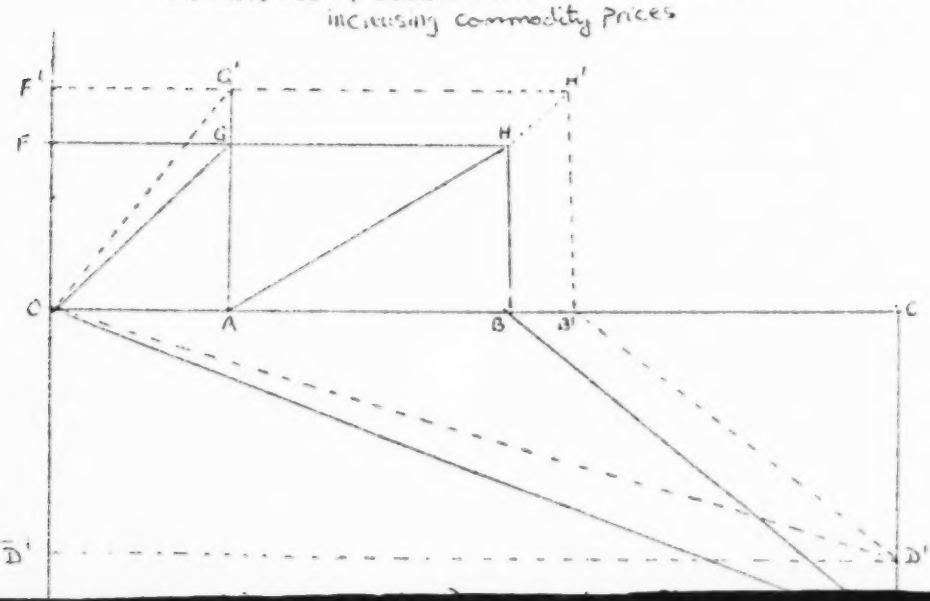
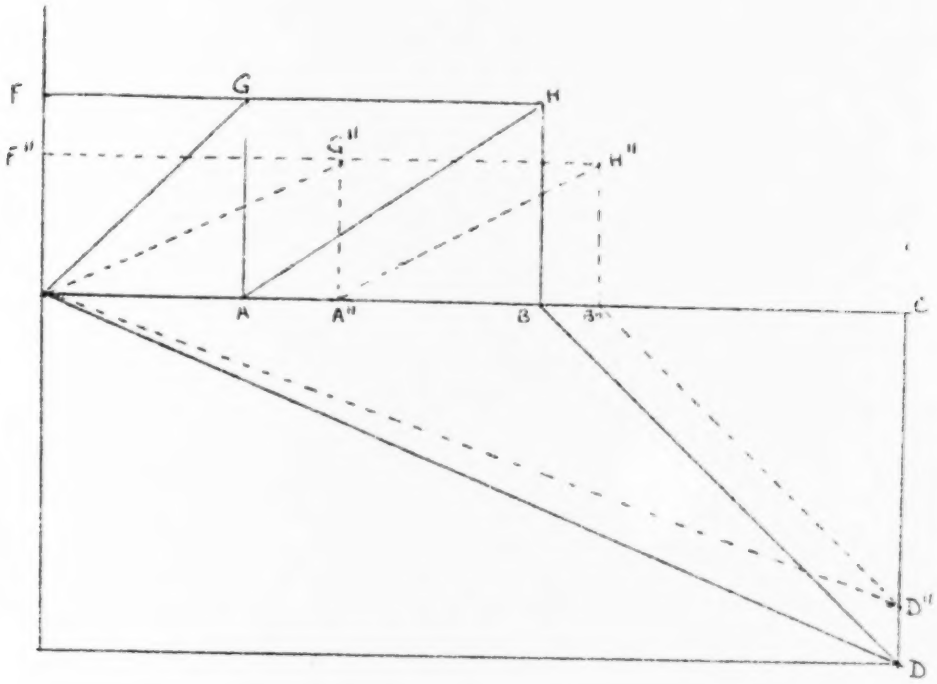


FIG 3

Medium Term Macro Economics with Decreasing Prices



requires the use of imported inputs. This increases the cost of production of the same in international currency. This increases the wage rate, resulting in the export commodities not being able to compete for the market with the countries that still use the traditional technique for the production of the wage-goods. Thus the demand for foreign exchange increases while the export goods become less competitive in the international market. This situation can remain fairly tolerable so far as there is sufficient net transfer of resources to the country from outside, but as soon as that ceases the situation would become intolerable.

As we have done in the case of a labour-constrained economy, this situation can also be explained algebraically as well as diagrammatically. But as that will be almost repetition of the above argument we refrain from doing so.